Date: 16 July 2001
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100F Area - Full Protocol
Subject: Inorganics - Data Package No. H1353-LLI (SDG No. H1353)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H1353-LLI prepared by Lionville Laboratory Incorporated (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B121F5	5/14/01	Soil	C	See note 1
B121F6	5/14/01	Soil	C	See note 1

1 - ICP metals by 6010B (lead).

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL September 2000). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

  Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 6 months for ICP metals.

  All holding times were acceptable.

- **Preparation (Method) Blanks**

  Preparation Blanks

  At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

  In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

  All preparation blank results were acceptable.

  Field Blank

  No field blanks were submitted for analysis.

- **Accuracy**

  Matrix Spike

  Matrix spike (MS) analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must fall within the range of 70% to 130%. Samples with a spike recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a spike recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a spike recovery greater than 130% and a sample result less than the IDL, no qualification is required.

  All matrix spike recovery results were acceptable.

- **Precision**

  Laboratory Duplicate Samples

  Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

  All laboratory duplicate results were acceptable.

  Field Duplicate

  No field duplicates were submitted for analysis.

- ***Analytical Detection Levels***

  Reported analytical detection levels are compared against the 100 Area Remedial Action Sampling and Analysis Plan TDLs to ensure that laboratory detection levels meet the required criteria. All reported detection limits met the analyte specific TDL.

- **Completeness**

  Data package No. H1353-LLI (SDG No. H1353) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

None found.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 2, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, September 2000

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

DATA QUALIFICATION SUMMARY

SDG: H1353	REVIEWER: TLI	DATE: 7/16/01	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD																			
Laboratory: Lionville Laboratory Inc.																			
Case	SDG: H1363																		
Sample Number		B121F5		B121F6															
Remarks																			
Sample Date		5/14/01		5/14/01															
Inorganics	TDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Lead	2	11.1		18.5															

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/25/01

CLIENT: TWURANFORD B00-030 H1353 LVL LOT #: 0105L798
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B121F5	Lead, Total	11.1	MG/KG	0.24	1.0
-002	B121F6	Lead, Total	18.5	MG/KG	0.24	1.0

fr 7/16/01

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030
LVL#: 0105L798
SDG/SAF#: H1353/B00-030

W.O.#: 11343-606-001-9999-00
Date Received: 05-17-01

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

3. All analyses were performed within the required holding times.

4. The cooler temperature has been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. The preparation/method blank (MB) was within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recovery was within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

14. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

05-30-01
Date

gmb/m05-798

0100JC110

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-008	Page 1 of 1
Collector: MT Stankovich	Company Contact: Mike Stankovich; Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 1607-F6	SAF No.: B00-030	Air Quality ☐
Ice Chest No.: 1AZ - METAL Drum	Field Logbook No.: EL-1535-1; COA: R607F62600	Method of Shipment: FED EX	
Shipped To: ~~THA/RECRA~~ Lionville Recra (MS 5-14-01)	Offsite Property No.: HMSR 000959	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS
PCB Site
<50ppm

Special Handling and/or Storage
PCBs

Preservation	~~None~~ (RT 5-16-01)	Cool 4C	Cool 4C	None	~~None~~ (RT 5-16-01)				
Type of Container	~~aG~~	aG B	aG A	aG C	~~P~~				
No. of Container(s)	~~1~~	1	1	1	~~1~~				
Volume	~~60mL~~	250mL	250mL	250mL	~~1000mL~~				
SAMPLE ANALYSIS	~~Strontium-89,90 - Total Sr; Nickel-63; Carbon-14; Technetium-99~~ (MS 5-14-01)	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (1) in Special Instructions.	~~See item (2) in Special Instructions.~~				TIETO

Sample No.	Matrix *	Sample Date	Sample Time										
B121F5	SOIL	5-14-01	0930		✓	✓	✓						B106P5
B121F6	SOIL	5-14-01	0921		✓	✓	✓						B106P5

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Stankovich	5-14-01 / 1610	Stored in 2C (MS 5-14-01)	5-14-01 / 1610
Removed from Ref 2C 3728	0830 5-16-01	R Thoren	0830 5-16-01
R Thoren	0830 5-16-01	FED EX	
FED EX	5/17/01 0950	[illegible]	5/17/01 0950

SPECIAL INSTRUCTIONS (MS 5-14-01)

(1) ICP Metals - 6010A (Supertrace) {~~Antimony, Chromium~~, Lead}; ~~Mercury - 7471 - (CV)~~
~~(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}~~
RT 5-16-01

4 Kg

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 5/14/01. Collector not available to relenquish samples on 5/16/01 for shipment.
RT 5-16-01

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

0000 15

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: 100 FE			DATA PACKAGE: H1353		
VALIDATOR: JH		LAB: LLI		DATE: 7/16/01	
CASE:			SDG: H1353		
ANALYSES PERFORMED					
☐ CLP/ICP	☐ CLP/GFAA	☐ CLP/Hg	☐ CLP/Cyanide	☐	☐
☐ SW-846/ICP	☐ SW-846/GFAA	☐ SW-846/Hg	☐ SW-846 Cyanide	☐	☐
SAMPLES/MATRIX B121F5 B121F6					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . Yes No (N/A)

Is a case narrative present? . . . . . (Yes) No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: _____

A-15

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments?	Yes	No	N/A
Are initial calibrations acceptable?	Yes	No	N/A
Are ICP interference checks acceptable?	Yes	No	N/A
Were ICV and CCV checks performed on all instruments?	Yes	No	N/A
Are ICV and CCV checks acceptable?	Yes	No	N/A

Comments:_____

4. BLANKS

Were ICB and CCB checks performed for all applicable analyses?	Yes	No	N/A
Are ICB and CCB results acceptable?	Yes	No	N/A
Were preparation blanks analyzed?	Yes	No	N/A
Are preparation blank results acceptable?	Yes	No	N/A
Were field/trip blanks analyzed?	Yes	No	N/A
Are field/trip blank results acceptable?	Yes	No	N/A

Comments:_____

5. ACCURACY

Were spike samples analyzed?	Yes	No	N/A
Are spike sample recoveries acceptable?	Yes	No	N/A
Were laboratory control samples (LCS) analyzed?	Yes	No	N/A
Are LCS recoveries acceptable?	Yes	No	N/A

Comments:_____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

Were laboratory duplicates analyzed?	Yes	No	N/A
Are laboratory duplicate samples RPD values acceptable?	Yes	No	N/A
Were ICP serial dilution samples analyzed?	Yes	No	N/A
Are ICP serial dilution %D values acceptable?	Yes	No	N/A
Are field duplicate RPD values acceptable?	Yes	No	N/A
Are field split RPD values acceptable?	Yes	No	N/A

Comments:_____

7. FURNACE AA QUALITY CONTROL

Were duplicate injections performed as required?	Yes	No	N/A
Are duplicate injection %RSD values acceptable?	Yes	No	N/A
Were analytical spikes performed as required?	Yes	No	N/A
Are analytical spike recoveries acceptable?	Yes	No	N/A
Was MSA performed as required?	Yes	No	N/A
Are MSA results acceptable?	Yes	No	N/A

Comments:_____

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses?	Yes	No	N/A
Are all results supported in the raw data?	Yes	No	N/A
Are results calculated properly?	Yes	No	N/A
Do results meet the CRDLs?	Yes	No	N/A

Comments:_____

Appendix 6

Additional Documentation Requested by Client

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 05/25/01

CLIENT: TNUHANFORD B00-030 H1353 LVL LOT #: 0105L798

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B121F5	Lead, Total	11.1	11.6	4.4	1.0

09

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 05/25/01

CLIENT: TNURANFORD B00-030 H1353 LVL LOT #: 0105L798

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B121F5	Lead, Total	59.9	11.1	46.8	104.3	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/25/01

CLIENT: TNUHANFORD B00-030 H1353 LVL LOT #: 0105L798

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0276-MB1	Lead, Total	0.27	MG/KG	0.26	1.0

Date: 16 July 2001
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100F Areas - Full Protocol
Subject: Semivolatiles - Data Package No. H1353-LLI (SDG No. H1353)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H1353-LLI prepared by Lionville Laboratory Incorporated (LLI). A list of the samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B121F5	5/14/00	Soil	C	See note 1
B121F6	5/14/00	Soil	C	See note 1

1 - Semivolatiles by EPA 8270C .

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL September 2000). Appendices 1 through 5 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

- **Holding Times**

  Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Water samples must be extracted within 7 days of the date of sample collection and analyzed within 40 days from the date of extraction.

  If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two

times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

Due to the samples arriving at the laboratory at a temperature of 19.8°F, all semi-volatile results were qualified as estimates and flagged "J".

- **Method Blanks**

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

All blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All matrix spike/matrix spike duplicate results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-20%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to an RPD of 40%, all 4-nitrophenol, 2-nitrophenol and 2,4-dinitrophenol results were qualified as estimates and flagged "J".

All other matrix spike/matrix spike duplicate results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the target detection limits (TDLs) to ensure that laboratory detection levels meet the required criteria. All anlaytes exceeded the TDL. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data package No. H1353-LLI (SDG No. H1353) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to the samples arriving at the laboratory at a temperature of 19.8°F, all semi-volatile results were qualified as estimates and flagged "J". Due to an RPD of 40%, all 4-nitrophenol, 2-nitrophenol and 2,4-dinitrophenol results were qualified as estimates and flagged "J". Data flagged 'J' is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

All analytes exceeded the TDL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 2, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, September 2000.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

DATA QUALIFICATION SUMMARY

SDG: H1353	REVIEWER: TLI	DATE: 7/16/01	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4-nitrophenol 2-nitrophenol 2,4-dinitrophenol	J	All	RPD
All	J	All	Sample preservation

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

SEMIVOLATILE/PAH ANALYSIS, SOIL MATRIX, (UG/KG) Page__1__ of__2__

Project: BECHTEL-HANFORD															
Laboratory: Lionville Laboratory Inc.															
Case:	SDG: H1353														
Sample Number		B121F5		B121F6											
Remarks															
Sample Date		5/14/01		5/14/01											
Extraction Date		5/18/01		5/18/01											
Analysis Date		5/25/01		5/25/01											
Semivolatile (8270C)	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	1700	UJ	1600	UJ										
bis(2-Chloroethyl)ether	330	1700	UJ	1600	UJ										
2-Chlorophenol	330	1700	UJ	1600	UJ										
1,3-Dichlorobenzene	330	1700	UJ	1600	UJ										
1,4-Dichlorobenzene	330	1700	UJ	1600	UJ										
Benzyl Alcohol	330	1700	UJ	1600	UJ										
1,2-Dichlorobenzene	330	1700	UJ	1600	UJ										
2-Methylphenol	330	1700	UJ	1600	UJ										
bis(2-Chloroisopropyl)ether	330	1700	UJ	1600	UJ										
4-Methylphenol	330	1700	UJ	1600	UJ										
N-Nitroso-di-n-propylamine	330	1700	UJ	1600	UJ										
Hexachloroethane	330	1700	UJ	1600	UJ										
Nitrobenzene	330	1700	UJ	1600	UJ										
Isophorone	330	1700	UJ	1600	UJ										
2-Nitrophenol	330	1700	UJ	1600	UJ										
2,4-Dimethylphenol	330	1700	UJ	1600	UJ										
Benzoic acid	330	1700	UJ	1600	UJ										
bis(2-Chloroethoxy)methane	330	1700	UJ	1600	UJ										
2,4-Dichlorophenol	330	1700	UJ	1600	UJ										
1,2,4-Trichlorobenzene	330	1700	UJ	1600	UJ										
Naphthalene	330	1700	UJ	1600	UJ										
4-Chloroaniline	330	1700	UJ	1600	UJ										
Hexachlorobutadiene	330	1700	UJ	1600	UJ										
4-Chloro-3-methylphenol	330	1700	UJ	1600	UJ										
2-Methylnaphthalene	330	1700	UJ	1600	UJ										
Hexachlorocyclopentadiene	330	1700	UJ	1600	UJ										
2,4,6-Trichlorophenol	330	1700	UJ	1600	UJ										
2,4,5-Trichlorophenol	800	4200	UJ	4100	UJ										
2-Chloronaphthalene	330	1700	UJ	1600	UJ										
2-Nitroaniline	800	4200	UJ	4100	UJ										
Dimethylphthalate	330	1700	UJ	1600	UJ										
Acenaphthylene	330	1700	UJ	1600	UJ										
2,6-Dinitrotoluene	330	1700	UJ	1600	UJ										

C0000

* - The reported detection limit is above the PQL/CRQL

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

SEMIVOLATILE/PAH ANALYSIS, SOIL MATRIX, (UG/KG) Page__2__ of__2__

Project: BECHTEL-HANFORD															
Laboratory: Lionville Laboratory Inc.															
Case:	SDG: H1353														
Sample Number		B121F5		B121F6											
Remarks															
Sample Date		5/14/01		5/14/01											
Extraction Date		5/18/01		5/18/01											
Analysis Date		5/25/01		5/25/01											
Semivolatile (8270C)	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	800	4200	UJ	4100	UJ										
Acenaphthene	330	1700	UJ	1600	UJ										
2,4-Dinitrophenol	800	4200	UJ	4100	UJ										
4-Nitrophenol	800	4200	UJ	4100	UJ										
Dibenzofuran	330	1700	UJ	1600	UJ										
2,4-Dinitrotoluene	330	1700	UJ	1600	UJ										
Diethylphthalate	330	1700	UJ	1600	UJ										
4-Chlorophenyl-phenyl ether	330	1700	UJ	1600	UJ										
Fluorene	330	1700	UJ	1600	UJ										
4-Nitroaniline	800	4200	UJ	4100	UJ										
4,6-Dinitro-2-methylphenol	800	4200	UJ	4100	UJ										
N-Nitrosodiphenylamine	330	1700	UJ	1600	UJ										
4-Bromophenyl-phenyl ether	330	1700	UJ	1600	UJ										
Hexachlorobenzene	330	1700	UJ	1600	UJ										
Pentachlorophenol	800	4200	UJ	4100	UJ										
Phenanthrene	330	1700	UJ	1600	UJ										
Anthracene	330	1700	UJ	1600	UJ										
Di-n-butylphthalate	330	1700	UJ	1600	UJ										
Fluoranthene	330	1700	UJ	1600	UJ										
Pyrene	330	1700	UJ	1600	UJ										
Butylbenzylphthalate	330	1700	UJ	1600	UJ										
3,3'-Dichlorobenzidine	330	1700	UJ	1600	UJ										
Benzo(a)anthracene	330	1700	UJ	1600	UJ										
Chrysene	330	1700	UJ	1600	UJ										
bis(2-Ethylhexyl)phthalate	330	1700	UJ	1600	UJ										
Di-n-octylphthalate	330	1700	UJ	1600	UJ										
Benzo(b)fluoranthene	330	1700	UJ	1600	UJ										
Benzo(k)fluoranthene	330	1700	UJ	1600	UJ										
Benzo(a)pyrene	330	1700	UJ	1600	UJ										
Indeno(1,2,3-cd)pyrene	330	1700	UJ	1600	UJ										
Dibenz(a,h)anthracene	330	1700	UJ	1600	UJ										
Benzo(g,h,i)perylene	330	1700	UJ	1600	UJ										

* - The reported detection limit is above the PQL/CRQL

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List — Report Date: 05/29/01 11:53

RFW Batch Number: 0105L798 — Client: THUHANFORD B00-030 H1353 — Work Order: 11343606001 — Page: 1a

	Cust ID:	B121F5		B121F6		B121F6		B121F6		SBLKWZ		SBLKWZ BS	
Sample Information	RFW#:	001		002		002 MS		002 MSD		01LL0591-MB1		01LL0591-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	5.00		5.00		5.00		5.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	67	%	63	%	61	%	72	%	89	%	82	%
	2-Fluorobiphenyl	77	%	69	%	72	%	76	%	87	%	82	%
	Terphenyl-d14	89	%	79	%	79	%	82	%	113	%	105	%
	Phenol-d5	64	%	56	%	59	%	65	%	79	%	71	%
	2-Fluorophenol	62	%	57	%	55	%	62	%	73	%	64	%
	2,4,6-Tribromophenol	54	%	47	%	49	%	60	%	95	%	92	%
Phenol		1700	U	1600	U	60	%	67	%	330	U	75	%
bis(2-Chloroethyl)ether		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2-Chlorophenol		1700	U	1600	U	58	%	64	%	330	U	72	%
1,3-Dichlorobenzene		1700	U	1600	U	1600	U	1600	U	330	U	330	U
1,4-Dichlorobenzene		1700	U	1600	U	57	%	62	%	330	U	74	%
1,2-Dichlorobenzene		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2-Methylphenol		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		1700	U	1600	U	1600	U	1600	U	330	U	330	U
3- and/or 4-Methylphenol		1700	U	1600	U	1600	U	1600	U	330	U	330	U
N-Nitroso-di-n-propylamine		1700	U	1600	U	64	%	79	%	330	U	82	%
Hexachloroethane		1700	U	1600	U	1600	U	1600	U	330	U	330	U
Nitrobenzene		1700	U	1600	U	1600	U	1600	U	330	U	330	U
Isophorone		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2-Nitrophenol		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2,4-Dimethylphenol		1700	U	1600	U	1600	U	1600	U	330	U	330	U
bis(2-Chloroethoxy)methane		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2,4-Dichlorophenol		1700	U	1600	U	1600	U	1600	U	330	U	330	U
1,2,4-Trichlorobenzene		1700	U	1600	U	61	%	65	%	330	U	82	%
Naphthalene		1700	U	1600	U	1600	U	1600	U	330	U	330	U
4-Chloroaniline		1700	U	1600	U	1600	U	1600	U	330	U	330	U
Hexachlorobutadiene		1700	U	1600	U	1600	U	1600	U	330	U	330	U
4-Chloro-3-methylphenol		1700	U	1600	U	59	%	64	%	330	U	81	%
2-Methylnaphthalene		1700	U	1600	U	1600	U	1600	U	330	U	330	U
Hexachlorocyclopentadiene		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2,4,6-Trichlorophenol		1700	U	1600	U	1600	U	1600	U	330	U	330	U
2,4,5-Trichlorophenol		4200	U	4100	U	4100	U	4100	U	830	U	830	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0105L798 Client: THUHANFORD B00-030 H1353 Work Order: 11343606001 Page: 1b

Cust ID:	B121F5		B121F6		B121F6		B121F6		SBLKWZ		SBLKWZ BS	
RFW#:	001		002		002 MS		002 MSD		01LE0591-MB1		01LE0591-MB1	
2-Chloronaphthalene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
2-Nitroaniline	4200	U	4100	U	4100	U	4100	U	830	U	830	U
Dimethylphthalate	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Acenaphthylene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
2,6-Dinitrotoluene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
3-Nitroaniline	4200	U	4100	U	4100	U	4100	U	830	U	830	U
Acenaphthene	1700	U	1600	U	71	*	77	*	330	U	87	*
2,4-Dinitrophenol	4200	U	4100	U	4100	U	4100	U	830	U	830	U
4-Nitrophenol	4200	U	4100	U	37	*	58	*	830	U	86	*
Dibenzofuran	1700	U	1600	U	1600	U	1600	U	330	U	330	U
2,4-Dinitrotoluene	1700	U	1600	U	53	*	69	*	330	U	89	*
Diethylphthalate	1700	U	1600	U	1600	U	1600	U	330	U	330	U
4-Chlorophenyl-phenylether	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Fluorene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
4-Nitroaniline	4200	U	4100	U	4100	U	4100	U	830	U	830	U
4,6-Dinitro-2-methylphenol	4200	U	4100	U	4100	U	4100	U	830	U	830	U
N-Nitrosodiphenylamine (1)	1700	U	1600	U	1600	U	1600	U	330	U	330	U
4-Bromophenyl-phenylether	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Hexachlorobenzene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Pentachlorophenol	4200	U	4100	U	67	*	75	*	830	U	87	*
Phenanthrene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Anthracene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Carbazole	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Di-n-butylphthalate	1700	U	1600	U	1600	U	100	J	330	U	330	U
Fluoranthene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Pyrene	1700	U	1600	U	78	*	79	*	330	U	96	*
Butylbenzylphthalate	1700	U	1600	U	1600	U	1600	U	330	U	330	U
3,3'-Dichlorobenzidine	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Benzo(a)anthracene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Chrysene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Di-n-octyl phthalate	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Benzo(b)fluoranthene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Benzo(k)fluoranthene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Benzo(a)pyrene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Dibenz(a,h)anthracene	1700	U	1600	U	1600	U	1600	U	330	U	330	U
Benzo(g,h,i)perylene	1700	U	1600	U	1600	U	1600	U	330	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

10/17/01

000023

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LVLI
LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B00-030
RFW #: 0105L798
SDG/SAF #: H1353/B00-030

W.O. #: 11343-606-001-9999-00
Date Received: 05-17-2001

SEMIVOLATILE

Two (2) soil samples were collected on 05-14-2001.

The samples and their associated QC samples were extracted on 05-18-2001 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 05-23,25-2001.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature (19.8° C) upon receipt has been recorded on the chain-of-custody.
2. The samples were extracted and analyzed within required holding times.
3. Non-target compounds were not detected in the samples.
4. Both samples required a 5-fold dilution due to dark and viscous nature of the extracts.
5. All surrogate recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. All matrix spike recoveries were within EPA QC limits.
8. Internal standard area criteria were not met for the method blank 01LE0591-MB1 and its associated blank spike. The GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly and all surrogate and spike recoveries were within QC limits; consequently, the sample was not reanalyzed.
9. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."
10. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor
President
Lionville Laboratory Incorporated

6/5/01
Date

som\gonup\data\bna\tnu-hanford-0105-798.doc

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

0105C170

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-008	Page 1 of 1
Collector: MT Stankovich	Company Contact: Mike Stankovich; Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 1607-F6	SAF No.: B00-030	Air Quality ☐
Ice Chest No.: 1AZ-METAL DRUM	Field Logbook No.: EL-1535-1; COA: R607F62600	Method of Shipment: FEDEX	
Shipped To: TMA/RECRA Lionville Recra	Offsite Property No.: HMSR 01/00959	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS
PCB Sts
150ppm

Special Handling and/or Storage
PCBs

Preservation	4°C	Cool 4C	Cool 4C	None	2 drops HNO3						
Type of Container	sG	B sG	A sG	sG C	OP						
No. of Container(s)		1	1	1	1						
Volume	60mL	250mL	250mL	250mL	1000mL						
SAMPLE ANALYSIS	Strontium-89,90 - Total Sr; Nickel-63; Carbon-14; Technetium-99 5-14-01	PCBs - 8082	Semi-VOA - 8270A (TCL)	See Item (1) in Special Instructions.	See Item (2) in Special Instructions.						TCLP

Sample No.	Matrix *	Sample Date	Sample Time									
B121F5	SOIL	5-14-01	0930		✓	✓	✓					B106P5
B121F6	SOIL	5-14-01	0921		✓	✓	✓					B106P5

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
S Stankovich	5-14-01 1610	S Stankovich	5-14-01 1610
R Stankovich	5-16-01 0830	R Thoren	5-16-01 0830
R Thoren	5-16-01 0830	FED EX	
FED EX	5/17/01 0950	P Fleenard	5/17/01 0950

SPECIAL INSTRUCTIONS

MB 5-14-01

(1) ICP Metals - 6010A (Supertrace) (Arsenic-Strontium, Lead); Mercury-7471A (CVAA)
(2) Gamma Spectroscopy-(Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

RT 5-15-01

Samples stored in Ref.# 21 at the 3728 Shipping Facility on 5/14/01.
Collector not available to relinquish samples on 5/16/01 for shipment.

RT 5-16-01

4 Kg

Matrix *: S=Soil; SD=Sediment; SO=Solid; S=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100F			DATA PACKAGE: H1353		
VALIDATOR: JLI		LAB: LLI		DATE: 7/16/01	
CASE:			SDG: H1353		

ANALYSES PERFORMED

☐ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☒ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B121FS B121FC

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . Yes No (N/A)

Is a case narrative present? . . . . . (Yes) No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: Sample preserved 19.8°F Jall

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No N/A

Are initial calibrations acceptable? . . . . . Yes No N/A

Are continuing calibrations acceptable? . . . . . Yes No N/A

Comments:_____

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments:_____

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . . Yes No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD results acceptable? . . . . . Yes No N/A

Comments:_____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . Yes (No) N/A
Are field duplicate RPD values acceptable? . . . . Yes No (N/A)
Are field split RPD values acceptable? . . . . Yes No (N/A)
Comments: 4 nitroanile – J/UJ
2 " "
2,4 dinitro phenol

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . Yes No (N/A)
Are internal standard areas acceptable? . . . . Yes No (N/A)
Are internal standard retention times acceptable? . . . . Yes No (N/A)
Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . Yes No (N/A)
Is compound quantitation acceptable? . . . . Yes No (N/A)
Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . (Yes) No N/A
Are all results supported in the raw data? . . . . Yes No (N/A)
Do results meet the CRQLs? . . . . Yes (No) N/A
Has the laboratory properly identified and coded all TIC? . . . Yes No (N/A)
Comments: all over

10

Lionville Laboratory Use Only
3105C798

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client TNU-HANFORD SAF# B00-030

Est. Final Proj. Sampling Date

Project # 11343-600-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager DJ

QC Spec Del Std TAT 21 day

Date Rec'd 5-17-01 Date Due 6-7-01

		A	B	C
Refrigerator #		3	3	3
#/Type Container	Liquid			
	Solid	1AG	1AG	1AG
Volume	Liquid			
	Solid	250	250	250
Preservatives		—	—	—

ANALYSES REQUESTED

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

Lionville Laboratory Use Only

MATRIX CODES: Soil - Sediment - Solid - Sludge - Water - Oil - Air - Drum Solids - Drum Liquids - EP/TCLP Leachate - Wipe - Other - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260SH	8270D	TPHBTO
	001	B121F5			S	5/14/01	0930	1	1	1
	002	1 6			1	1	0921	1	1	1

E30003

Special Instructions: SAF B00-030

Run Matrix QC

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # Fed Ex

2) Ambient or ~~Chilled~~

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N; 2) Unbroken on Outer Package (Y) or N; 3) Present on Sample (Y) or N; 4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 19.8 °C

Discrepancies Between Sample Labels and COC Record? Y or (N)

NOTES: 8094 4562 8998

Relinquished by	Received by	Date	Time
[signature]	[signature]	5/17/01	0930

Relinquished by	Received by	Date	Time

COMPOSITE ORIGINAL

Date: 16 July 2001
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100F Areas - Full Protocol
Subject: PCB - Data Package No. H1353-LLI (SDG No. H1353)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H1353-LLI prepared by Lionville Laboratory Inc. (LLI). A list of the samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B121F5	5/14/01	Soil	C	PCBs by 8082
B121F6	5/14/01	Soil	C	PCBs by 8082

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2000). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation

DATA QUALITY PARAMETERS

- **Holding Times**

  Sample data were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

  If holding times are exceeded by less than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all

associated detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

Due to the samples arriving at the laboratory at a temperature of 19.8°F, all PCB results were qualified as estimates and flagged "J".

- **Method Blank**

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than target detection limit (TDL). If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than TDL, the result is qualified as undetected and elevated to the TDL.

All method blank target compound results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike analyses are performed in duplicate and must be within control limits of 70% to 130%. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All matrix spike results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the

control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

All surrogate recovery results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All matrix spike/matrix spike duplicate precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area TDLs to ensure that laboratory detection levels meet the required criteria. The reported detection limit was exceeded for all undetected aroclor-1221 results. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data Package No. H1353-LLI (SDG No. H1353) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to the samples arriving at the laboratory at a temperature of 19.8°F, all PCB results were qualified as estimates and flagged "J". Data flagged "J" is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

The reported detection limit was exceeded for all undetected aroclor-1221 results. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 2, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, September 2000.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

DATA QUALIFICATION SUMMARY

SDG: H1353	REVIEWER: TLI	DATE: 7/16/01	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All	J	All	Sample preservation

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD																					
Laboratory: LLI																					
Case	SDG: H1353																				
Sample Number		B121F5		B121F6																	
Remarks																					
Sample Date		5/14/01		5/14/01																	
PCB	PQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor-1016	50	33	UJ	33	UJ																
Aroclor-1221	50	67	UJ	67	UJ																
Aroclor-1232	50	33	UJ	33	UJ																
Aroclor-1242	50	33	UJ	33	UJ																
Aroclor-1248	50	33	UJ	33	UJ																
Aroclor-1254	50	33	UJ	33	UJ																
Aroclor-1260	50	33	UJ	33	UJ																

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/30/01 08:35

RFW Batch Number: 0105L798 Client: TNUHANFORD B00-030 H1353 Work Order: 11343606001 Page: 1

	Cust ID:	B121F5		B121F5		B121F5		B121F6		PBLKFA		PBLKFA BS	
Sample Information	RFW#:	001		001 MS		001 MSD		002		01LE0587-MB1		01LE0587-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	95	%	82	%	82	%	85	%	82	%	15 *	%
	Decachlorobiphenyl	94	%	87	%	87	%	87	%	87	%	94	%
			fl		fl		fl		fl		fl		fl
Aroclor-1016		33	U J	32	U	34	U	33	U J	33	U	33	U
Aroclor-1221		67	U	65	U	67	U	67	U	67	U	67	U
Aroclor-1232		33	U	32	U	34	U	33	U	33	U	33	U
Aroclor-1242		33	U	32	U	34	U	33	U	33	U	33	U
Aroclor-1248		33	U	32	U	34	U	33	U	33	U	33	U
Aroclor-1254		33	U	83	%	77	%	33	U	33	U	75	%
Aroclor-1260		33	U	32	U	34	U	33	U	33	U	33	U

K
7/16/01

7/30/01

000031

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B00-030
LVL#: 0105L798
SDG/SAF#: H1353/B00-030

W.O.#: 11343-606-001-9999-00
Date Received: 05-17-01

PCB

The set of samples consisted of two (2) soil samples collected on 05-14-01.

The samples and their associated QC samples were extracted on 05-18-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-24-01. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature has been recorded on the chain-of-custody.

2. All required holding times for extraction and analysis have been met.

3. The samples and their associated QC samples received a sulfuric acid cleanup.

4. The method blank was below the reporting limits for all target compounds.

5. One (1) of twelve (12) surrogate recoveries was outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).

6. The blank spike recovery was within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. All initial calibrations associated with this data set were within acceptance criteria.

9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

10. As of January 27, 2001, Recra Labnet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra Labnet Philadelphia.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

6/1/01
Date

pef/r:\group\data\pest\05L-798.pcb

0105C 190

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-008	Page 1 of 1

Collector: MT Stankovich	Company Contact: Mike Stankovich; Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code 8L; Data Turnaround 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 1607-F6	SAF No.: B00-030	Air Quality ☐
Ice Chest No.: IAZ-METAL DRUM	Field Logbook No.: EL-1535-1; COA: R607F62600	Method of Shipment: FEDEX	
Shipped To: ~~TMA/RECRA~~ MS 5-14-01 Lionville Recra	Offsite Property No.: HMSR 000959	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS
PCB Site
<50ppm

Special Handling and/or Storage
PCBs

Preservation	~~Cool 4C~~ MS 5-14-01	Cool 4C	Cool 4C	None	~~None~~ MS 5-14-01
Type of Container	~~aG~~	aG B	aG A	aG C	~~aP~~
No. of Container(s)	~~1~~	1	1	1	~~1~~
Volume	~~60mL~~	250mL	250mL	250mL	~~1000mL~~
SAMPLE ANALYSIS	~~Strontium-89,90 - Total Sr; Nickel-63; Carbon-14; Technetium-99~~ MS 5-14-01	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (1) in Special Instructions	~~See item (2) in Special Instructions~~

Sample No.	Matrix *	Sample Date	Sample Time										T/ET
B121F5	SOIL	5-14-01	0930		✓	✓	✓						B106
B121F6	SOIL	5-14-01	0921		✓	✓	✓						B106

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Stankovich	5-14-01 / 1610	~~Received By~~ MS 5-14-01 Stored in 2C	5-14-01 / 1610
Removed from Ref 2C 3728	0830 5-16-01	R Thoren	0830 5-16-01
R Thoren	0830 5-16-01	FEDEX	
FedEx	5/17/01 0950	[signature]	5/17/01 0950

SPECIAL INSTRUCTIONS MS 5-14-01
(1) ICP Metals - 6010A (Supertrace) [~~Arsenic, Chromium~~, Lead]; ~~Mercury - 7471 - (CV)~~
~~(2) Gamma Spectroscopy [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]~~
RT 5-15-01

4 Kg

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 5/14/01. Collector not available to relenquish samples on 5/16/01 for shipment. RT 5-16-01

Matrix *: S=Soil, SE=Sediment, SO=Solid, S=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Appendix 5

Data Validation Supporting Documentation

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100F		DATA PACKAGE:	H1353	
VALIDATOR:	TH	LAB:	LL	DATE:	7/16/01
CASE:			SDG:	H1353	
ANALYSES PERFORMED					
☐ CLP3/90	☐ SW-846 8080	☐ SW-846 8081	☒ 8082	☐	☐
SAMPLES/MATRIX					
B12IF5 B12IF6					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . Yes No (N/A)

Is a case narrative present? . . . . . (Yes) No N/A

Comments: _____

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . Yes (No) N/A

Comments: preservation - 19.8 °F

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (METHOD 8080 AND 8081)

Are DDT retention times acceptable . . . . . Yes No (N/A)

Are calibration standard retention times acceptable? . . . . . Yes No (N/A)

Are DDT and endrin breakdowns acceptable? . . . . . Yes No (N/A)

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are DBC retention times acceptable? . . . . . Yes No N/A

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No N/A

Comments:_____

3.2 CALIBRATIONS (METHOD 8080 AND 8081)

Are EVAL standard calibration factors and %RSD values acceptable? . . . . . Yes No N/A

Are quantitation column calibration factor %RSD values acceptable? . . . . . Yes No N/A

Were the analytical sequence requirements met? . . . . . Yes No N/A

Are continuing calibration %D values acceptable? . . . . . Yes No N/A

Comments:_____

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Was the initial calibration sequence performed? . . . . . Yes No N/A

Was the resolution acceptable in the resolution check mix? . . Yes No N/A

Is resolution acceptable in the PEM, INDA and INDB? . . . . . Yes No N/A

Are DDT and Endrin breakdowns acceptable? . . . . . Yes No N/A

Are retention times in PEMs and calibration mixes acceptable? . Yes No N/A

Are RPD values in the PEMs acceptable? . . . . . Yes No N/A

Are %RSD values acceptable? . . . . . Yes No N/A

Comments:_____

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Were the analytical sequence requirements met? . . . . . Yes No N/A

Is resolution acceptable in the PEMs? . . . . . Yes No N/A

Are initial calibrations acceptable? . . . . . Yes No N/A

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are retention times acceptable in the PEMs, INDA and INDB mixes?	Yes	No	N/A
Are RPD values in the PEMs acceptable?	Yes	No	N/A
Are the DDT and endrin breakdowns acceptable?	Yes	No	N/A
Was GPC cleanup performed?	Yes	No	N/A
Is the GPC calibration check acceptable?	Yes	No	N/A
Was Florisil cleanup performed?	Yes	No	N/A
Is the Florisil performance check acceptable?	Yes	No	N/A

Comments:_____

4. BLANKS

Were laboratory blanks analyzed?	Yes	No	N/A
Are laboratory blank results acceptable?	Yes	No	N/A
Were field/trip blanks analyzed?	Yes	No	N/A
Are field/trip blank results acceptable?	Yes	No	N/A

Comments:_____

5. ACCURACY

Were surrogates analyzed?	Yes	No	N/A
Are surrogate recoveries acceptable?	Yes	No	N/A
Were MS/MSD samples analyzed?	Yes	No	N/A
Are MS/MSD results acceptable?	Yes	No	N/A
Were LCS samples analyzed?	Yes	No	N/A
Are LCS results acceptable?	Yes	No	N/A

Comments:_____

PESTICIDE/PCB DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . (Yes) No N/A
Are laboratory duplicate results acceptable? . . . . . Yes No (N/A)
Are field duplicate RPD values acceptable? . . . . . Yes No (N/A)
Are field split RPD values acceptable? . . . . . Yes No (N/A)
Comments:

7. SYSTEM PERFORMANCE

Is chromatographic performance acceptable? . . . . . Yes No (N/A)
Are positive results resolved acceptably? . . . . . Yes No (N/A)
Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No (N/A)
Is compound quantitation acceptable? . . . . . Yes No (N/A)
Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . (Yes) No N/A
Are all results supported in the raw data? . . . . . Yes No (N/A)
Do results meet the CRQLs? . . . . . Yes (No) N/A
Comments: 1221 over

Lionville Laboratory Use Only
0105L798

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LvLI

Client TNU-HANFORD SAF# B00-030

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 21 day

Date Rec'd 5-17-01 Date Due 6-7-01

			A	B			C	
Refrigerator #			3	3			3	
#/Type Container	Liquid							
	Solid		1AG	1AG			1AG	
Volume	Liquid							
	Solid		250	250			250	
Preservatives			—	—			—	
ANALYSES REQUESTED →	ORGANIC: VOA		BNA	Pest/PCB	Herb		INORG: Metal	CN

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA: OCSSH	Pest/PCB: OPCB	Herb	Metal: MPBTO	CN
001	B121F5			S	5/14/01	0930		1	1		1	
002	⊥ 6			⊥	⊥	0921		1	1		1	

Special Instructions: Saf B00-030

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # Geo Beltran
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec'd (Y) or N
Cooler Temp. 19.8 °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	5/17/01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES:
8094 4562 8998

Date: 16 July 2001
To: Bechtel Hanford, Inc. (technical representative)
From: TechLaw, Inc.
Project: 100F Areas - Full Protocol
Subject: Radiochemistry - Data Package No. H1353-ES (SDG No. H1353)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H1353-ES which was prepared by Eberline Services (ES). A list of samples validated along with the analyses reported and the requested analytes is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
B121F5	5/14/01	Soil	C	See note 1
B121F6	5/14/01	Soil	C	See note 1

1 - Gamma spectroscopy; total strontium; carbon-14; nickel-63.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL September 2000). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

  Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

  All holding times were acceptable.

- **Preparation (Method) Blanks**

  Laboratory Blanks

  Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

  All blank results were acceptable.

  Field Blank

  No field blanks were submitted with the SDG.

- **Accuracy**

  Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is either 70-130% or ±3 sigma. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% or ±3 sigma, tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

  All accuracy results were acceptable.

- **Laboratory Duplicates**

  Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no

qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicate

No field duplicates were submitted for analysis.

- **Detection Levels**

  Reported analytical detection levels for undetected analytes are compared against the 100 Area Remedial Action Sampling and Analysis Plan target detection limits (TDLs) to ensure that laboratory detection levels meet the required criteria. The following analytes were reported above their TDL: Uranium-238 in all samples. Under the BHI statement of work, no qualification is required. All other reported laboratory MDAs were at or below the analyte-specific TDL.

- **Completeness**

  Data package No. H1353-ES (SDG No. H1353) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following analytes were reported above their TDL: Uranium-238 in all samples. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 2, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, September 2000.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI statement of work are as follows:

U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

Appendix 2

Summary of Data Qualification

DATA QUALIFICATION SUMMARY

SDG: H1353	REVIEWER: TLI	DATE: 7/16/01	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD																			
Laboratory: ES																			
Case	SDG: H1353																		
Sample Number		B121F5		B121F6															
Remarks																			
Sample Date		5/14/01		5/14/01															
Radiochemistry	TDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Carbon-14	25	-0.201	U	-0.160	U														
Nickel-63		0.093	U	0.208	U														
Strontium (total)	1	-0.006	U	-0.003	U														
Potassium-40		13.9		14.1															
Cobalt 60	0.05	U	U	U	U														
Cesium 137	0.05	0.050		0.089															
Radium-226		0.486		0.468															
Radium-228		0.684		0.760															
Europium 152	0.1	0.029		0.065															
Europium 154	0.1	U	U	U	U														
Europium 155	0.1	0.022	U	U	U														
Thorium-228		0.624		0.663															
Thorium-232		0.684		0.760															
Uranium-235 (GEA)	0.1	0.026	U	0.024	U														
Uranium-238 (GEA)	0.1	U	U	U	U														
Americium-241 (GEA)	0.1	U	U	U	U														

070000

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1353

R105107-02 B121F6

DATA SHEET

SDG	7693	Client/Case no	Hanford SDG H1353
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R105107-02	Client sample id	B121F6
Dept sample id	7693-002	Location/Matrix	1607-F6 SOLID
Received	05/17/01	Collected	05/14/01 09:21
% solids	98.7	Custody/SAF No	B00-030-008 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Carbon 14	14762-75-5	-0.160	3.0	5.1	50	U	C
Nickel 63	13981-37-8	0.208	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.003	0.13	0.18	1.0	U	SR
Potassium 40	13966-00-2	14.1	0.43	0.094			GAM
Cobalt 60	10198-40-0	U		0.009	0.050	U	GAM
Cesium 137	10045-97-3	0.089	0.007	0.008	0.10	J	GAM
Radium 226	13982-63-3	0.468	0.020	0.017	0.10		GAM
Radium 228	15262-20-1	0.760	0.047	0.041	0.20		GAM
Europium 152	14683-23-9	0.065	0.012	0.019	0.10	J	GAM
Europium 154	15585-10-1	U		0.031	0.10	U	GAM
Europium 155	14391-16-3	U		0.035	0.10	U	GAM
Thorium 228	14274-82-9	0.663	0.014	0.010			GAM
Thorium 232	TH-232	0.760	0.047	0.041			GAM
Uranium 235	15117-96-1	0.024	0.023	0.036		U	GAM
Uranium 238	U-238	U		1.1		U	GAM
Americium 241	14596-10-2	U		0.013		U	GAM

100 F Area - Full Protocol

6/14/01

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/04/01

000011

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1353

R105107-01 B121F5

DATA SHEET

SDG	7693	Client/Case no	Hanford	SDG H1353	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R105107-01	Client sample id	B121F5		
Dept sample id	7693-001	Location/Matrix	1607-F6	SOLID	
Received	05/17/01	Collected	05/14/01 09:30		
% solids	98.5	Custody/SAF No	B00-030-008	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Carbon 14	14762-75-5	-0.201	3.2	5.3	50	U	C
Nickel 63	13981-37-8	0.093	1.3	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.006	0.15	0.21	1.0	U	SR
Potassium 40	13966-00-2	13.9	0.20	0.079			GAM
Cobalt 60	10198-40-0	U		0.008	0.050	U	GAM
Cesium 137	10045-97-3	0.050	0.009	0.010	0.10	J	GAM
Radium 226	13982-63-3	0.486	0.018	0.016	0.10		GAM
Radium 228	15262-20-1	0.684	0.040	0.038	0.20		GAM
Europium 152	14683-23-9	0.029	0.010	0.017	0.10	J	GAM
Europium 154	15585-10-1	U		0.030	0.10	U	GAM
Europium 155	14391-16-3	0.022	0.016	0.025	0.10	U	GAM
Thorium 228	14274-82-9	0.624	0.011	0.010			GAM
Thorium 232	TH-232	0.684	0.040	0.038			GAM
Uranium 235	15117-96-1	0.026	0.026	0.037		U	GAM
Uranium 238	U-238	U		1.0		U	GAM
Americium 241	14596-10-2	U		0.032		U	GAM

100 F Area - Full Protocol

7/16/01

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/04/01

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1353 was composed of two solid (soil) samples designated under SAF No. B00-030 with a Project Designation of: 100 F Area – Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on June 4, 2001.

2.0 ANALYSIS NOTES

2.1 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.2 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.3 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.4 Gamma Spectroscopy Analyses

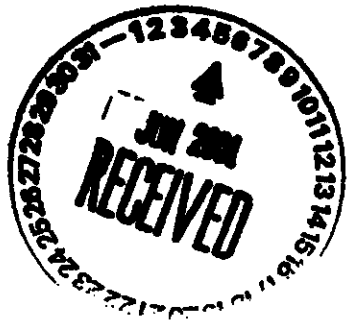
No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion
Melissa C. Mannion
Program Manager

June 4, 2001
Date



Bechtel Hanford Inc. — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: MT Stankovich	Company Contact: Mike Stankovich; Telephone No. 531-7620	Project Coordinator: TRENT, SJ	Price Code 8L; Data Turnaround 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 1607-F6 H1353 (7693)	SAF No. B00-030	Air Quality ☐
Ice Chest No. IAZ-METAL Drum	Field Logbook No. EL-1535-1; COA R607F62600	Method of Shipment: FEDEX	
Shipped To 5-14-01 ~~TMA/RESRA~~ Eberline Services	Offsite Property No. HMSR 000934	Bill of Lading/Air Bill No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS
PCB Site
<50ppm

Special Handling and/or Storage
PCBs

Preservation	None	~~None~~ Cool 4C 5-16-01	~~None~~ Cool 4C 5-16-01	~~None~~ 5-16-01	None
Type of Container	aG	aG	aG	aG	P
No. of Container(s)	1				1
Volume	60mL	250mL	250mL	250mL	1000mL
SAMPLE ANALYSIS	Strontium-89,90 – Total Sr; Nickel-63; Carbon-14; Technetium-99 (5-14-01)	~~PCBs - 8082~~	~~Semi-VOA - 8270A (TCL)~~	~~See item (1) in Special Instructions.~~	See item (2) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time						
B121F5	SOIL	5-14-01	0930	✓				✓	B106F…
B121F6	SOIL	5-14-01	0921	✓				✓	B106F…

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Stankovich	5-14-01 /1610	~~Received By~~ Stored in RC (5-14-01)	5-14-01/1610
Removed from Ref. RC 3728	0830 5-16-01	R Thoren	0830 5-16-01
R Thoren	0830 5-16-01	FED EX	5-16-01
FED. EXPRESS	5-17-01 10:…	E. SEGURO	5-17-01 10:…

SPECIAL INSTRUCTIONS
~~(1) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)~~ 5-16-01
(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Samples stored in Ref. #RC at the 3728 Shipping Facility on 5/14/01. Collector not available to relenquish samples on 5/16/01 for shipment.
RT 5-16-01

4 Kg

Matrix *: S=Soil, SE=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5

Data Validation Supporting Documentation

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100 F			DATA PACKAGE: #1353		
VALIDATOR: TLC		LAB: EB		DATE: 7/16/01	
CASE:			SDG: #1353		

ANALYSES PERFORMED					
☐ Gross Alpha/Beta	☒ Strontium-90	☐ Technetium-99	☐ Alpha Spectroscopy	☒ Gamma Spectroscopy	
☐ Total Uranium	☐ Radium-22	☐ Tritium	☒ C14	☒ Ni63	

SAMPLES/MATRIX
B121FS B121FC

1. Completeness . . . . . ☒ N/A

Technical verification forms present? . . . . . Yes No N/A

Comments: _____

2. Initial Calibration . . . . . ☒ N/A

Instruments/detectors calibrated within one year of sample analysis? . . . . . Yes No N/A

Initial calibration acceptable? . . . . . Yes No N/A

Standards NIST traceable? . . . . . Yes No N/A

Standards Expired? . . . . . Yes No N/A

Comments: _____

3. Continuing Calibration . . . . . ☒ N/A

Calibration checked within one week of sample analysis? . . .	Yes	No	N/A
Calibration check acceptable?	Yes	No	N/A
Calibration check standards NIST traceable?	Yes	No	N/A
Calibration check standards expired?	Yes	No	N/A

Comments:_____

4. Blanks . . . . . ☐ N/A

Method blank analyzed?	(Yes)	No	N/A
Method blank results acceptable?	(Yes)	No	N/A
Analytes detected in method blank?	Yes	(No)	N/A
Field blank(s) analyzed?	Yes	(No)	N/A
Field blank results acceptable?	Yes	No	(N/A)
Analytes detected in field blank(s)?	Yes	No	(N/A)
Transcription/Calculation Errors?	Yes	No	(N/A)

Comments:_____

5. Matrix Spikes . . . . . ☒ N/A

Matrix spike analyzed?	Yes	No	N/A
Spike recoveries acceptable?	Yes	No	N/A
Spike source traceable?	Yes	No	N/A
Spike source expired?	Yes	No	N/A
Transcription/Calculation Errors?	Yes	No	N/A

Comments:_____

6. Laboratory Control Samples . . . . . ☐ N/A

LCS analyzed?	Yes	No	N/A
LCS recoveries acceptable?	Yes	No	N/A
LCS traceable?	Yes	No	N/A
Transcription/Calculation Errors?	Yes	No	N/A

Comments:_____

7. Chemical Recovery . . . . . ☐ N/A

Chemical carrier added?	Yes	No	N/A
Chemical recovery acceptable?	Yes	No	N/A
Chemical carrier traceable?	Yes	No	N/A
Chemical carrier expired?	Yes	No	N/A
Transcription/Calculation errors?	Yes	No	N/A

Comments:_____

8. Duplicates . . . . . ☐ N/A

Duplicates Analyzed?	Yes	No	N/A
RPD Values Acceptable?	Yes	No	N/A
Transcription/Calculation Errors?	Yes	No	N/A

Comments:_____

9. Field QC Samples . . . . ☐ N/A

Field duplicate sample(s) analyzed? . . . . Yes (No) N/A
Field duplicate RPD values acceptable? . . . . Yes No (N/A)
Field split sample(s) analyzed? . . . . Yes (No) N/A
Field split RPD values acceptable? . . . . Yes No (N/A)
Performance audit sample(s) analyzed? . . . . Yes (No) N/A
Performance audit sample results acceptable? . . . . Yes No (N/A)

Comments:

10. Holding Times

Are sample holding times acceptable? . . . . (Yes) No N/A

Comments:

11. Results and Detection Limits (Levels D & E) . . . . ☐ N/A

Results reported for all required sample analyses? . . . . . (Yes) No N/A
Results supported in raw data? . . . . Yes No (N/A)
Results Acceptable? . . . . (Yes) No N/A
Transcription/Calculation errors? . . . . Yes No (N/A)
MDA's meet required detection limits? . . . . Yes (No) N/A
Transcription/calculation errors? . . . . Yes No (N/A)

Comments: U238 - [illegible]

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1353

R105107-05 B121F5

DUPLICATE

SDG 7693 Client/Case no Hanford SDG H1353

Contact Melissa C. Mannion Case no No. 630

DUPLICATE		ORIGINAL		
Lab sample id R105107-05	Lab sample id R105107-01	Client sample id B121F5		
Dept sample id 7693-005	Dept sample id 7693-001	Location/Matrix 1607-F6	SOLID	
	Received 05/17/01	Collected 05/14/01 09:30		
% solids 98.5	% solids 98.5	Custody/SAF No B00-030-008	B00-030	

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Carbon 14	-0.585	2.9	4.9	50	U	C	-0.201	3.2	5.3	U	-	
Nickel 63	-0.113	1.4	2.3	30	U	NI_L	0.093	1.3	2.3	U	-	
Total Strontium	0.037	0.16	0.20	1.0	U	SR	-0.006	0.15	0.21	U	-	
Potassium 40	13.4	0.59	0.23			GAM	13.9	0.20	0.079		4	33
Cobalt 60	U		0.025	0.050	U	GAM	U		0.008	U	-	
Cesium 137	0.065	0.023	0.026	0.10	J	GAM	0.050	0.009	0.010	J	26	72
Radium 226	0.457	0.050	0.046	0.10		GAM	0.486	0.018	0.016		6	36
Radium 228	0.742	0.13	0.12	0.20		GAM	0.684	0.040	0.038		8	43
Europium 152	U		0.060	0.10	U	GAM	0.029	0.010	0.017	J	70	208
Europium 154	U		0.088	0.10	U	GAM	U		0.030	U	-	
Europium 155	U		0.065	0.10	U	GAM	0.022	0.016	0.025	U	-	
Thorium 228	0.631	0.032	0.027			GAM	0.624	0.011	0.010		1	33
Thorium 232	0.742	0.13	0.12			GAM	0.684	0.040	0.038		8	43
Uranium 235	U		0.10		U	GAM	0.026	0.026	0.037	U	-	
Uranium 238	U		2.9		U	GAM	U		1.0	U	-	
Americium 241	U		0.093		U	GAM	U		0.032	U	-	

100 F Area - Full Protocol

QC-DUP#1 38692

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 06/04/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1353

R105107-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7693
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1353
Case no No. 630

Lab sample id R105107-03
Dept sample id 7693-003

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No 800-030

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	11200	220	34	50		C	11300	450	99	84-116	80-120
Nickel 63	255	5.4	2.6	30		NI_L	264	11	97	84-116	80-120
Total Strontium	24.7	0.64	0.24	1.0		SR	22.1	0.88	112	82-118	80-120
Cobalt 60	0.312	0.030	0.018	0.050		GAM	0.289	0.012	108	70-130	80-120
Cesium 137	0.314	0.021	0.014	0.10		GAM	0.294	0.012	107	73-127	80-120

100 F Area - Full Protocol

QC-LCS 38690

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/04/01

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1353

R105107-04 Method Blank

METHOD BLANK

SDG 7693 Client/Case no Hanford SDG H1353
Contact Melissa C. Mannion Contract No. 630

Lab sample id R105107-04 Client sample id Method Blank
Dept sample id 7693-004 Material/Matrix SOLID
SAF No B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	0.103	3.2	5.4	50	U	C
Nickel 63	13981-37-8	0.539	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	-0.138	0.23	0.34	1.0	U	SR
Potassium 40	13966-00-2	U		0.49		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	U		0.044	0.10	U	GAM
Radium 228	15262-20-1	U		0.078	0.20	U	GAM
Europium 152	14683-23-9	U		0.041	0.10	U	GAM
Europium 154	15585-10-1	U		0.057	0.10	U	GAM
Europium 155	14391-16-3	U		0.033	0.10	U	GAM
Thorium 228	14274-82-9	U		0.039		U	GAM
Thorium 232	TH-232	U		0.078		U	GAM
Uranium 235	15117-96-1	U		0.056		U	GAM
Uranium 238	U-238	U		1.9		U	GAM
Americium 241	14596-10-2	U		0.017		U	GAM

100 F Area - Full Protocol

QC-BLANK 38691

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 06/04/01

Review Comment Record (RCR)

1. Date	2. Review No.
7/19/01	BHI/QA1008
3. Project	4. Page
100F	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
SDG No.: H1353	100F Areas Full Protocol	Claude Stacey	BHI/QA	H0-16/372-9208

17. Comment Submittal Approval: 18. Agreement with indicated comment disposition(s) 19. CLOSED

Organization Manager (Optional) / Date — Reviewer/Point of Contact / Author/Originator

Date — Reviewer/Point of Contact / Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Semivolatile: Page 01, 04, refers to the data package as H1353-LVI; whereas, other sections refer to the data package as H1353-LLI. The LVI should be changed to LLI to be consistent.		Concur	
2	Semivolatile: Page 10 and 11 the table heading has the matrix as water and the units as ug/l. This should be changed to Soil and units of UG/KG.		Concur	
3	Semivolatile: Pages 12 and 13 are reversed.		Concur	
4	Radiochemistry: OK – No Comments			
5	PCBs: OK – No Comment			
6	Inorganic: Pages 10 and 11 are reversed.		Concur	

Lynch, Sherry A

From: Weiss, Richard L
Sent: Tuesday, July 17, 2001 11:58 AM
To: Lynch, Sherry A
Cc: Duncan, Jeanette M
Subject: Comments on SDG H1353 Validation Packages

Follow Up Flag: Follow up
Due By: Wednesday, July 18, 2001 5:00 PM
Flag Status: Flagged

Sherry,

Here is what I found on review of the validation packages for SDG H1353

Radiochemistry - pg 10: TDL for Eu-155 is incorrect. It should be 0.10. Corr K

Inorganics - Pages 10 & 11 are "swapped" relative to all other packages. Corr K

Semivolatiles - Pages 12 & 13 are "swapped". corr K

PCBs - No comments.

Rich

Review Comment Record (RCR)

1. Date	2. Review No.
7/19/01	BHI/QA1008
3. Project	**4. Page**
100F	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
SDG No.: H1353	100F Areas Full Protocol	Claude Stacey	BHI/QA	H0-16/372-9208

10. Comment Submittal Approved:

Organization Manager (Optional) — Date

10. Agreement with indicated comment disposition(s)

Reviewer/Point of Contact — Date

Author/Originator

11. CLOSED

Claude Stacey
Reviewer/Point of Contact
7/26/01
Date

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (*Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.*)	14. Hold Point	15. Disposition (*Provide justification if NOT accepted.*)	16. Status
1	Semivolatile: Page 04, 04, refers to the data package as H1353-LVI; whereas, other sections refer to the data package as H1353-LLI. The LVI should be changed to LLI to be consistent.		Concur	
2	Semivolatile: Page 10 and 11 the table heading has the matrix as water and the units as ug/l. This should be changed to Soil and units of UG/KG.		Concur	
3	Semivolatile: Pages 12 and 13 are reversed.		Concur	
4	Radiochemistry: OK – No Comments			
5	PCBs: OK – No Comment			
6	Inorganic: Pages 10 and 11 are reversed.		Concur	

Post-it® Fax Note 7671 | Date | # of pages ▶ 1

To Jeanette Duncan | From C. Stacey

Co./Dept. | Co.

Phone # | Phone #

Fax # 372-9487 | Fax #

FAX

TECHLAW, INC.

451 Hills, Suite 23
Richland, WA 99352
509-375-5667
509-375-5151 (fax)

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 20 June 2001

Information Request #2

H1353 - Semi-VOA/PCB

The laboratory work request indicates that the samples were recieved at a temperature of 19.8°C. The laboratory work request also indicates that the samples were properly preserved, which is in conflict with the BHI chain of custody which indicates the samples should have been kept chilled at 4°C. My intention is to qualify the data due to improper preservation unless you have further information to provide.

FAX

TECHLAW, INC.
451 Hills, Suite 23
Richland, WA 99352
509-375-5667
509-375-5151 (fax)

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 20 June 2001

Information Request #1

H1353 - Semi-VOA

What should I use for detection limits. The 100-Area SAP doesn't address SV detection limits.

FAX

TECHLAW, INC.
451 Hills, Suite 23
Richland, WA 99352
509-375-5667
509-375-5151 (fax)

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 20 June 2001

Information Request #2

H1353 - Semi-VOA/PCB

The laboratory work request indicates that the samples were recieved at a temperature of 19.8°C. The laboratory work request also indicates that the samples were properly preserved, which is in conflict with the BILL chain of custody which indicates the samples should have been kept chilled at 4°C. My intention is to qualify the data due to improper preservation unless you have further information to provide.

Bruce,

Rich said to proceed + qualify as needed.

Jeanette

FAX

TECHLAW, INC.
451 Hills, Suite 23
Richland, WA 99352
509-375-5667
509-375-5151 (fax)

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 20 June 2001

Information Request #1

H1353 - Semi-VOA

What should I use for detection limits. The 100-Area SAP doesn't address SV detection limits.

Bruce,

Rich said to use contract RDL's for detection limits.

Jeanette

Lynch, Sherry A

From: Christian, Bruce [BChristian@TechLawInc.com]
Sent: Thursday, July 19, 2001 7:09 PM
To: 'Lynch, Sherry A'
Subject: RE: Validation Comments for Package H1353

The e-mail attachments you sent aren't supported by my e-mail (I have no idea why). Joan has an e-fax number that you can fax them to that works pretty well.

-----Original Message-----
From: Lynch, Sherry A
To: 'bchristian@techlawinc.com'
Cc: Duncan, Jeanette M
Sent: 7/19/01 5:12 PM
Subject: Validation Comments for Package H1353

<<RE: Comments on SDG H1353 Validation Packages>> <<Validation Review for
package H1353>> <<Comments on SDG H1353 Validation Packages>>
Hello:
I am filling in for Jeanette -- I hope it is okay to send comments to you
via e-mail. If you have any questions please let me know.
Thank you,
Sherry
<<RE: Comments on SDG H1353 Validation Packages>> <<Validation Review for package H1353>> <<Comments on SDG H1353 Validation Packages>>

Lynch, Sherry A

From: Smith-Jackson, Noe'l N D
Sent: Wednesday, July 18, 2001 2:08 PM
To: Duncan, Jeanette M; Lynch, Sherry A; Weiss, Richard L
Cc: Callison, Stacey W
Subject: Validation Review for package H1353

Follow Up Flag: Follow up
Due By: Wednesday, July 18, 2001 5:00 PM
Flag Status: Flagged

All,

I have reviewed data package H1353 and have no comments. The information presented in this package correlates to data that was included in the 95% UCL calc brief.

Thanks,
Noe'l Smith-Jackson